

WHY DIGITAL CERTIFICATION IS ESSENTIAL FOR TODAY'S MEDICAL PROFESSIONAL

BY SERGIO D'ARPA

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To Priscilla and Edoardo

PROLOGUE

This pamphlet is designed to introduce doctors to the concept of degree certification, an innovative process that offers significant professional and security benefits. Digital certification of a medical degree allows doctors to obtain a "blue tick" online—a mark of authenticity that safeguards the doctor's identity and provides patients with assurance against the risk of impostor professionals.

The growth of health tourism and the increase in online fraud make this certification an essential step. Patients are increasingly seeking specialists in other countries to find specific expertise. In this global landscape, there is a real risk that patients may encounter fake professionals, which poses serious health and safety risks. Degree certification, therefore, serves as a guarantee of the doctor's reputation and as a safeguard for patient safety.

The book also introduces the concept of the "Digital Twin," an advanced tool that enables remote monitoring of patients' health through devices that collect real-time biometric data. However, to effectively adopt and use a Digital Twin, the doctor must first certify their digital identity.

The digital revolution for medical professionals starts here, but let's explore why
<https://kliniksanktmoritz.ch/physician/>

1.

CERTIFICATION

Certification is the first step in entering the world of digital medicine, where authenticity and transparency are paramount. At the end of this book, I have included a market analysis of health tourism, a rapidly growing sector that underscores the importance of certification in attracting patients from around the world. In an increasingly digital and global healthcare environment, certifying one's degree represents the foundation of a safe and cutting-edge medical practice.

Online medical degree certification offers the highest level of professional security, providing a scientific “blue tick” for social media and the internet. Let's explore why this initiative was created and how it applies.

Klinik Sankt Moritz is the world's first certification authority dedicated to doctors, aimed at protecting medical professionals and patients both now and in the future. This document delves into why Klinik Sankt Moritz chose to adopt these technologies.

My name is Sergio d'Arpa, and I am the founder of Klinik Sankt Moritz, the first fully digital clinic worldwide, focused on longevity and supported by the world's first Digital Twin for health.

“ONLINE MEDICAL DEGREE CERTIFICATION OFFERS THE HIGHEST LEVEL OF PROFESSIONAL SECURITY, PROVIDING A SCIENTIFIC “BLUE TICK” FOR SOCIAL MEDIA AND THE INTERNET.”

The Digital Twin gathers biometric data from healthy patients through commercially available wearables and uses artificial intelligence to help prevent future adverse events.

The primary goal of a fully digital clinic is comprehensive security: data protection, regulatory compliance across countries, patient data safety, and guarantees for medical professionals.

We have developed a complete ecosystem of security and compliance that safeguards everyone involved in the clinic. Our first online question was: who is truly a doctor?

Before Klinik Sankt Moritz, a fully digital healthcare ecosystem did not exist. There was no digital clinic, nor a scientific “blue tick” for medical qualifications.

At Klinik Sankt Moritz, we often say, “The only NFT that matters is the NFT of a doctor’s degree.” My vision for digital medicine involves protecting data from the moment it’s acquired, during its transfer, and upon reaching its destination.

Verifying the authenticity of the doctor managing the data is essential. It is dangerous to share medical data with a fake professional.

Before the Digital Twin, before the digital clinic and medical tourism, digital certification of doctors was necessary—a requirement also valid for other healthcare professionals and clinics.

With the rise of social media, it has become easier for anyone to build a professional image online. Some exploit this by

posing as qualified doctors, endangering patient safety and the reputation of legitimate practitioners.

The future of healthcare is evolving with technology, providing support to both doctors and patients. Imagine a system that gathers health data from multiple sources—general information, lifestyle, family history—and analyses it to predict health risks. This personalised insight could reduce medical visits and improve chronic condition management.

At its foundation, a global medical certification programme ensures that patients can interact confidently with qualified professionals worldwide. Collaborating with Klinik Sankt Moritz means joining a network of trust and reaching a global market.

Technology is shifting healthcare from reactive to proactive and even predictive care. Managing chronic conditions like heart disease or certain cancers could become more precise, with sophisticated algorithms analysing new digital biomarkers. This approach allows doctors to deliver targeted treatments, while patients gain greater control over their health.

Data privacy remains a major concern, with stringent safeguards to ensure that personal health data is used

responsibly and ethically. Klinik Sankt Moritz does not share patient data, even anonymously, and adheres to high audit standards to continuously improve outcomes.

Klinik Sankt Moritz provides healthcare professionals with tools and training to leverage digital potential, creating a collaborative environment for publishing new research.

In this dynamic healthcare landscape, the potential is transformative: technology supports continuous monitoring and advanced care, placing both healthcare providers and patients at the forefront of a medical revolution.

1.

REPUTATION

The Doctor's Online Image and Reputation

Today, a person's online image can be easily manipulated. Just as many take photos in front of luxury venues to pretend to frequent exclusive places, it has also become simple and accessible to falsely claim a profession, like that of a doctor.

While a fake image on social media may seem harmless, pretending to be a doctor can have devastating consequences. For patients seeking assistance online, being certain that the professional is a qualified doctor is essential to avoid health risks.

Dangers to Patient Health and Safety

A fake online doctor can seriously endanger patients' health and safety because:

Unsupervised Injections and Treatments: Medical procedures like injections are often seen as low-risk and feasible outside the clinic. However, every medical act has risks and requires competence and safety.

An injection by a fake doctor gives a false sense of security, but even a small puncture can lead to serious issues.

Cosmetic Surgery and Dysmorphia: Cosmetic surgery is particularly prone to misrepresentation, being seen as less invasive. Fake professionals exploit this perception, attracting patients to procedures that seem simple but require experience.

This issue is more common online, where patients may feel dissatisfied with their appearance after video calls that highlight flaws and wrinkles. This "Balzac syndrome" surged during the pandemic with the widespread use of video conferencing.

Risk of Infections and Complications: Those practising without proper skills cannot ensure correct hygiene techniques, increasing the risk of infections and other serious complications.

The Need to Protect Doctors' Reputations

True doctors invest years in their training and continuous education. However, this hard-earned reputation is vulnerable to online attacks, where anyone can create a fake profile and steal a doctor's identity, causing significant harm:

Loss of Credibility: A fake doctor harming a patient can damage the reputation of the real doctor, especially if the

online clone uses the same name or operates in the same area.

Financial Loss: Doctors may face financial losses as patients could turn to a fake professional, believing them to be the real doctor.

Risk of Identity Theft: Creating a cloned site of a real doctor, with stolen photos and information, is easy and allows fake professionals to deceive patients without requiring complex PINs.

Banking System Security and Online Fraud

Unauthorised Access to Bank Accounts

To breach a banking system, the fraudster needs the client's credentials, including email, password, and in some cases, the mobile phone. Some systems also require a security code sent via app or email.

Once access is gained, funds can be transferred from the victim's account to foreign accounts, often in countries without extradition treaties.

Complexity of Bank Fraud

This method requires advanced security knowledge and mainly targets vulnerable people, like the elderly, who may provide PINs to strangers.

Although it has a low success rate, the few successful cases can result in significant financial damage.

Fraud Risks for Doctors and Patients

Clone Sites and Health Professional Scams

Creating a clone of a medical practice website is far easier than bank fraud. A fraudster can register a similar domain

(e.g., from "medicoxyz.com" to "medico-xyz.com") and copy the design and information from the authentic site.

The clone site may differ only in small details, such as the phone number or email address, attracting unsuspecting patients who, believing they are booking with a qualified doctor, end up contacting a fake professional.

Lack of Security Measures to Verify Identity

Unlike banking systems, medical websites lack security measures to authenticate a professional's identity. There are no digital certifications to confirm that a site or social profile genuinely belongs to a doctor.

This leaves patients vulnerable to scams, such as paying deposits for appointments that will never happen. In some cases, the patient may even face health risks if the fraudster tries to "treat" the patient without proper skills.

The fake doctor might even offer home services.

Protecting the Doctor's Reputation and Identity

The Importance of Online Certification

For doctors, protecting their online identity is crucial.

Certification is a system that assures patients that the doctor they are interacting with is qualified and authorised. This verification occurs through a clinic using blockchain technology, ensuring data transparency and security.

With a double link, the patient can be confident they are consulting a real doctor, while the professional can protect their reputation.

Additionally, the doctor joins the Klinik Sankt Moritz network, a clinic with advanced technological solutions compared to competitors.

Benefits of Certification for the Patient

Certification protects the patient, ensuring that information is authentic and services are provided by qualified professionals.

Certification is not only a security measure but also an added value for the doctor, who gains international recognition, standing out from competitors by demonstrating high standards of professionalism and transparency.

Online Security for Banking and Health Professionals Requires Different Strategies

In banking, security is complex but effective, protected by sophisticated measures such as PINs and multi-factor authentication. However, in healthcare, online security still needs to evolve, and introducing digital certifications is an essential step to protect patients and doctors, preventing fraud that jeopardises trust and health.

Certification as a Measure of Security and Prestige

To protect the integrity of the medical profession and ensure patient safety, certification is essential:

Doctor Certification: Klinik Sankt Moritz has developed a system to certify its doctors, ensuring the authenticity and constant updating of their skills.

Periodic Verification of Qualifications: Certification involves continuous verification of a doctor's qualifications and skills. It includes authorisation to practice and access to a list of attended conferences and training courses.

Using Blockchain for Security: Certified doctors' data is protected via blockchain, ensuring security against identity theft. Thus, patients can trust the information, knowing it is up-to-date and verified.

Benefits for Patients and Professionals

A certification system is not just a matter of security; it also represents an opportunity to enhance personal branding and practice reputation:

Patient Protection: Patients gain access to reliable information, knowing that the doctor is qualified and up-to-date.

Enhancement of Certified Doctors: Certification provides doctors with international recognition and increased visibility, particularly if they belong to a prestigious network like Klinik Sankt Moritz.

Improved Communication with Patients: A certified doctor can keep their profile updated on a Swiss third-party clinic platform, showcasing their skills and providing a level of transparency that boosts patient trust.

The Importance of Certification for Medical Device Companies and Advanced Techniques

Certification is also crucial for companies producing medical devices or developing specific techniques, like regenerative medicine. It ensures that the doctor has undergone training in a specific methodology within a set timeframe.

As a third-party entity, Klinik Sankt Moritz hosts a global directory of doctors who have completed such training. This provides the manufacturer's website with a list of certified, up-to-date professionals, making it easier for patients seeking qualified specialists nearby.

This initiative offers multiple benefits: it informs potential patients, supports certified doctors, and enables continuous monitoring of training.

In the modern world, protecting one's online identity is essential, especially for doctors whose reputation and patient

safety can be jeopardised by fake profiles and cloned websites.

Implementing a robust certification system, like that of Klinik Sankt Moritz, not only protects patients but also enhances the doctor's professionalism and image, ensuring continuous security in a world where online fraud threats are increasingly prevalent.

Your image is strengthened across all levels of security, from cybersecurity to the network of a Swiss clinic where innovations like the Digital Twin in healthcare are developed.

3.

NEWS FROM THE WORLD

A collection of news from the world about fake doctors

Rise of fake doctors on social media ‘puts lives at risk’
recent incidents on social media have brought to light the alarming prevalence of individuals falsely representing themselves as qualified medical practitioners and giving medical advice.

<https://mg.co.za/news/2023-10-18-rise-of-fake-doctors-on-social-media-puts-lives-at-risk/>

“IMPOSTORS: ABC15 relaunches fake doctor series after recent cases

Fake doctors are still a problem – a big one. And more needs to be done to stop them”

<https://www.abc15.com/news/local-news/investigations/impostors-abc15-relaunches-fake-doctor-series-after-recent-cases>

“Fake doctor interacting with patients, stealing from offices: WakeMed

“Fake doctors might seem like the stuff of fiction, but they're real – and more common than you think”

<https://www.abc.net.au/news/2021-09-05/untrained-doctors-practising-medicine-more-common-than-you-think/100382050>

“Phoney-physician furore leads to massive credentials check. The highly publicized case involving an imposter who practised medicine in Canada without a licence has had a far-reaching impact.”

https://pmc.ncbi.nlm.nih.gov/articles/PMC1229667/pdf/cmaj_159_5_557.pdf

"Caltanissetta, fake gynaecologist on trial
Identity theft and practising without a licence. These are the charges facing a suspected fake gynaecologist."

<https://gds.it/articoli/archivio/2014/05/08/caltanissetta-falso-ginecologo-sul-banco-degli-imputati-342794-21288b49-b87b-41c4-b262-c7a3b739d4ec/>

A person is reportedly impersonating doctors at health care facilities across the Triangle.

WakeMed confirmed to ABC11 that it was aware of the incident and working with police to make sure all patients are safe and secure.”

<https://abc11.com/doctor-impersonator-fake-wakemed-health-care/14316424/>

“Fake surgeon caught — others let him slip by

Primary verification was the key

"Doctor" Dennis Edward Roark practiced medicine for more than a decade”

<https://www.reliasmedia.com/articles/39421-fake-surgeon-caught-8212-others-let-him-slip-by>

“Fake teen doctor, now 25, sentenced to prison for new scam
Malachi Love-Robinson was sentenced to more than two years after pleading guilty to stealing more than \$10,000 from his employer.”

<https://www.nbcnews.com/news/crime-courts/fake-teen-doctor-now-25-sentenced-prison-new-scam-rcna64064>

Fake doctors use forged certificates to register with Rajasthan Medical Council

The council registered several people as medical practitioners who didn't have proper MBBS degrees.

<https://www.indiatoday.in/india/story/rajasthan-medical-council-fake-doctors-registration-certificates-2609747-2024-10-02>

"He worked for almost two months in the emergency department of Cassino, claiming to be a doctor specialised in neurology, but his qualification (obtained in Ukraine) is not valid in Italy. Discovered by the police, the 50-year-old has been arrested..."

<https://www.dagospia.com/rubrica-29/cronache/poi-dici-che-sanita-rsquo-italiana-va-rotoli-strano-caso-ivan-413299.htm>

"Pari exposes 11 fake doctors in 4 months+

<https://www.herald.co.zw/pari-exposes-11-fake-doctors-in-4-months/>

"Fake doctor injured a patient while pretending to be a cosmetic surgeon, L.A. prosecutors say"

<https://www.latimes.com/california/story/2024-08-25/fake-doctor-plastic-surgery-arrest>

"Rome, practised without a degree and left patient disabled. Fake doctor worked at hospital for 15 years.

The Court of Auditors has convicted the fake doctor, who worked for 15 years at San Giacomo. The accused was the head of the orthopaedics team."

https://www.ilmessaggero.it/roma/news/roma_chirurgo_senza_laurea_paziente_invalido-6719038.html

"Fake doctor exposed after 20 years

Ex-navy officer had nursing degree but said he wanted to earn more money"

<https://www.bangkokpost.com/thailand/general/2861208/fake-doctor-exposed-after-20-years>

"Fake doctor must repay one million Court of Auditors ruling against a 62-year-old former councilor from Cassolnovo who worked in a hospital for 30 years."

<https://laprovinciapavese.gelocal.it/pavia/cronaca/2016/12/19/news/falso-medico-deve-restituire-un-milione-1.14592243>

California prosecutors charge alleged fake "doctor" who treated thousands, including cancer patients

<https://www.cbsnews.com/news/los-angeles-fake-doctor-stephan-gevorkian-practicing-medicine-without-license/>

"Fake doctor who worked in NHS for 20 years found guilty of fraud

Zholia Alemi practised as psychiatrist without necessary qualifications after forging medical degree certificate"

<https://www.theguardian.com/uk-news/2023/feb/15/fake-doctor-zholia-alemi-nhs-guilty-fraud>

"Fake cardiologist in Milan. For 30 years, he visited patients at home and in his office.

The man had attended medical school without ever graduating. During that time, in the 1980s, he volunteered at Niguarda Hospital in Milan. Shortly after, he began illegally seeing residents of the neighbourhood, especially the elderly, both in his office and at home."

https://www.quotidianosanita.it/cronache/articolo.php?articolo_id=7013

"Fake Doctor Performs Delicate Procedures for 20 Years Before Finally Getting Arrested

A 36-year-old Thai man who admitted to having only a Grade 9 education has been arrested for performing penis enlargement procedures for 20 years without a medical license."

<https://www.odditycentral.com/news/fake-doctor-performs-delicate-procedures-for-20-years-before-finally-getting-arrested.html>

"Fake doctor discovered at Frosinone hospital. He was working without a degree.

The man, a fifty-year-old from the province of Rome, has been referred to the Public Prosecutor's Office."

<https://www.frosinonetoday.it/cronaca/scoperto-falso-medico-ospedale-frosinone.html>

Fake Doctors, Dead Patients: How A Medical Racket Unfolded In South Delhi

Four people were arrested in connection with the deaths of two patients who underwent surgeries at a clinic in the south Delhi locality.

<https://www.ndtv.com/delhi-news/fake-doctors-dead-patients-how-a-medical-racket-unfolded-in-south-delhi-4578693>

"FAKE DOCTOR IN THE EMERGENCY ROOM

She works as a doctor in the hospital but only has a middle school education. How did she do it?

Patients treated with paracetamol, a history of fraud, and a child 'bought': here's who she is..."

<https://torinocronaca.it/news/cronaca/306879/fa-il-medico-in-ospedale-ma-ha-solo-la-terza-media-come-ha-fatto.html>

"'Fake doctor' Dean Faiello sheds light on botched procedure that left New York woman dead nearly 20 years ago"

<https://abcnews.go.com/US/fake-doctor-dean-faiello-sheds-light-procedure-left/story?id=94277790>

"Fake doctor caused injuries to a newborn: now the child cannot move his arms.

Developments in the investigation of Andrea Stampini: he worked in the delivery room but had never obtained a medical license. He had even served as Head of Obstetrics and Gynaecology."

<https://nuovavenezia.gelocal.it/venezia/cronaca/2015/10/22/news/falso-medico-procuro-lesioni-al-neonato-non-puo-muovere-le-braccia-1.12310322>

“A 50-year-old was arrested in Dalaguete town southern Cebu after allegedly pretending to be a doctor in order to work at the town’s rural health unit.”

<https://www.philstar.com/the-freeman/cebu-news/2024/04/26/2350539/fake-doctor-arrested-dalaguete-town>

"Rome, 'fake doctor' practised without a degree for 15 years: reported after causing paralysis in a patient's hand."

<https://www.ilfattoquotidiano.it/2022/05/30/roma-falso-medico-opera-senza-laurea-per-15-anni-la-denuncia-dopo-causato-la-paralisi-alla-mano-di-un-paziente/6609430/>

"Fake doctor operates by watching a YouTube tutorial: 15-year-old boy dies, and the culprit flees.

The police are trying to track down the fake doctor and the clinic staff."

<https://www.ilfattoquotidiano.it/2024/09/10/finto-medico-opera-guardando-tutorial-su-youtube-ragazzo-di-15-anni-muore-e-il-colpevole-si-da-alla-fuga/7687738/>

"Posed as a hospital doctor for 30 years: exposed after a patient’s complaint.

He also conducted gynaecological exams."

<https://www.torinotoday.it/cronaca/falso-medico-mauriziano-pavia.html>

A PHONY PHYSICIAN JAILED BY HIS EGO; Ex-G.I. Tries to Sell Magazine Story of Eight-State Pose as Experienced Doctor

<https://www.nytimes.com/1953/11/01/archives/a-phony-physician-jailed-by-his-ego-exgi-tries-to-sell-magazine.html?auth=login-google1tap&login=google1tap>

Health warning over Italy's fake dentists and phoney doctors

Up to 15,000 unqualified doctors, while shonky dentists who get caught 'pay the fine, change premises and start again'
<https://www.theguardian.com/world/2010/may/28/italy-fake-dentists-doctors>

A brief history of fake doctors, and how they get away with it
Melbourne man Raffaele Di Paolo pleaded guilty last week to a number of charges related to practising as a medical specialist when he wasn't qualified to do so.

<https://theconversation.com/a-brief-history-of-fake-doctors-and-how-they-get-away-with-it-94572>

Fake physician 'diagnosed' diabetes by asking patients to hold metal rod

<https://cardiovascularbusiness.com/topics/clinical/heart-health/fake-physician-diagnosed-diabetes-florida>

3.

HEALTH TOURISM

Health Tourism and Pre-hospitalisation

In this second part, we examine health tourism and pre-hospitalisation, highlighting the benefits of certification within an international scientific network and the Digital Twin.

Being part of the Klinik Sankt Moritz network means more than certification; it also provides access to the Digital Twin. We'll explore the context in which Klinik Sankt Moritz operates and the opportunities its Digital Twin offers to each doctor.

In a connected world, this information is vital. The Digital Twin enables two essential surgical activities: follow-up and pre-hospitalisation. These activities, achievable with a tablet even thousands of miles away, are invaluable and unrivalled.

Follow-up is a common practice, but the Digital Twin significantly enhances its effectiveness. Here, however, we focus on an often overlooked aspect: pre-hospitalisation.

Using the Digital Twin for remote pre-hospitalisation can increase surgical success and reduce professional risks in the operating room, providing a competitive and safety advantage for both the professional and the patient.

Health tourism arises for various reasons: economic, quality of care, and the search for the best available treatment. For example, a patient with early-stage cancer may choose health

tourism for greater privacy or to avoid impacts on their health insurance.

Today, surgery is an important economic sector, and many countries promote health tourism by offering quality care and comprehensive services, such as follow-up and rehabilitation. Even countries with limited resources can attract patients through advanced follow-up services in collaboration with more equipped nations.

Health tourism is rapidly evolving but faces legislative challenges. For example, stem cell treatments are regulated differently across countries, leading patients to seek innovative therapies abroad.

With an annual growth rate of 24%, the health tourism sector is expanding, supported by technologies like the Digital Twin. For Klinik Sankt Moritz certified doctors, this tool is essential for monitoring patients remotely, enhancing continuity of care.

Projections for the Next 10 Years

Health tourism is expected to continue growing, driven by rising healthcare costs in developed countries, technological advances, and adherence to international standards. The European market is projected to reach \$35.87 billion by 2029, with an annual growth rate of 17.82%.

Countries with Growth in Health Tourism

India:

Known for affordable care and high-quality healthcare facilities.

Thailand:

Recognised for advanced medical services and hospitality.

Mexico:

Popular with US patients for geographical proximity and lower costs.

In Italy, health tourism is growing, valued at an estimated €15 billion, due to spa facilities and excellence in various medical treatments.

Countries with the Most Health Tourists in the Last 10 Years

- United States: Despite high costs, it attracts patients for highly specialised and innovative treatments.
- Germany: Known for cutting-edge facilities and high-quality care.
- Turkey: Has seen significant growth in health tourists, especially for cosmetic treatments and hair transplants.

In Italy, health tourism is expanding, with an estimated value of €15 billion. The country is renowned for spa facilities and excellence in various medical treatments, attracting both national and international patients.

Over the past decade, health tourism has grown significantly, with a CAGR ranging from 12% to 25%, and a total value exceeding \$70 billion by 2023. Demand for overseas care is driven by lower costs and high-quality treatments in emerging countries like India, Thailand, and Turkey.

Leading Regions

Asia:

India, Thailand, and Malaysia are leaders due to high-quality, low-cost care. India has seen a 25% annual increase in international patients from 2014 to 2023.

Mexico and Brazil:

Attract patients from the USA and Canada for affordable dental and surgical treatments.

Middle East:

Countries like the UAE and Turkey have invested heavily in modern hospitals and qualified staff; Turkey welcomed about 1.5 million patients in 2023, generating over \$4 billion. Health tourism has evolved to meet demand for specialised interventions, leveraging gaps in healthcare systems of some countries and high costs in nations like the USA and the UK. In recent years, it has become an economic driver for many emerging economies.

Attraction Factors

International patients are motivated by economic factors, quality of care, and access to advanced treatments. For example, cardiac surgery in the USA can cost \$150,000, while in India it's around \$15,000, with comparable standards.

- Quality of care: Countries like South Korea and Singapore ensure high standards with international accreditations.
- Advanced technologies: Destinations such as South Korea, Japan, and Germany attract patients for innovative treatments like robotic surgery and proton therapy for cancer.

Future Prospects (2024-2034)

The global health tourism market is projected to grow at a CAGR of 10-15% over the next decade, exceeding \$120-150 billion by 2034. This growth is supported by an ageing population, with over 20% of the global population expected to be over 60 by 2030, and rising demand for cosmetic procedures.

4. Economic Impact of Health Tourism

Health tourism is a major source of income for many countries, contributing to sectors such as tourism and employment. According to recent reports:

India:

Health tourism contributes around 6% to India's tourism GDP, creating about 250,000 direct and indirect jobs. Hospitals in cities like Mumbai, Bangalore, and Delhi have increased demand for qualified staff, generating over 500,000 jobs in the healthcare sector.

Turkey:

The government has invested over \$30 billion in modern healthcare facilities, attracting over one million international patients in 2023 and generating \$3.5 billion. This has also benefited the hotel, restaurant, and transportation sectors.

Thailand:

Medical tourism accounts for nearly 9% of the national tourism industry, supported by favourable visas and partnerships with accredited hospitals. Bangkok and Phuket are popular cities, with hospitals offering comprehensive packages, including transfers, accommodation, and post-operative care.

Health tourism also encourages the training of new professionals and the adoption of higher medical standards. A country's reputation as a health tourism destination attracts foreign investment, strengthening the industry.

5. Popular Specialties and Average Costs

The most requested specialties include cosmetic surgery, orthopaedics, dentistry, and oncology treatments. Below is an overview of average treatment costs and geographical preferences:

Cosmetic surgery:

Latin America is a major hub, with Brazil and Mexico leading. Liposuction in Brazil costs about 30% of the US price, while rhinoplasty costs around \$3,000 compared to \$8,000 in the United States.

Dentistry:

Eastern Europe is known for competitive dental treatments, with Poland and Hungary as main destinations. A dental implant in Poland costs about \$1,000, compared to \$3,500 in the United States.

Oncology treatments:

South Korea is a leader in advanced oncology treatments like proton therapy, with costs around \$40,000, less than half of the US price.

Orthopaedics:

India is known for low-cost orthopaedic surgery, such as knee and hip replacements, costing between \$5,000 and \$7,000.

Cardiac surgery:

India offers procedures at costs up to 70% lower than in the USA; a coronary bypass costs about \$5,000 compared to \$30,000 in the United States.

Health tourism is an expanding sector that meets evolving global needs. With the ageing population and technologies like the Digital Twin, it is set to become a central element in global healthcare.

Pre-hospitalisation and Prehabilitation

In the realm of health tourism, pre-hospitalisation may seem like an unattainable ideal. However, the Digital Twin allows practitioners to "know" the patient in advance and to provide a preoperative protocol.

Research on surgeries with pre-hospital preparation, including monitored physical activity, is growing. This preparation, known as prehabilitation, is a structured programme that combines physical exercise, nutritional

support, and psychological interventions to optimise patients' physical and mental conditions before surgery.

Below is a summary of evidence on the effectiveness of these pre-hospitalisation programmes.

1. Effects of Prehabilitation on Surgical Outcomes

Research shows that comprehensive preoperative preparation, with supervised exercise, leads to:

Reduced postoperative hospital stays

Fewer postoperative complications

Improved short- and long-term quality of life

Accelerated functional recovery

Key study: A study in *JAMA Surgery* highlighted that patients who follow a multidisciplinary prehabilitation programme, including cardiovascular and strength training, experience a 30% reduction in postoperative hospital stays compared to those without such preparation.

2. Importance of Physical Activity Monitoring

Monitoring and personalising physical activity before surgery is crucial to ensure patients are physically prepared for surgical trauma:

Physical activity improves aerobic and muscular capacity, essential for postoperative metabolism.

Studies suggest that supervised exercise is critical to avoid injuries and maximise cardiopulmonary benefits.

The Digital Twin allows these activities to be conducted remotely.

Key study: A meta-analysis on cancer patients showed that those engaging in supervised exercise programmes experience fewer complications and better functional

recovery rates compared to those exercising independently or not preparing physically.

3. Effectiveness in Abdominal and Orthopaedic Surgery

Specific studies demonstrate prehabilitation's effectiveness in abdominal and orthopaedic surgeries, where surgical trauma is more intense and recovery is longer:

Prehabilitation reduces pulmonary complications in patients undergoing colorectal surgery.

In orthopaedic surgery, it improves functional independence and reduces complications during rehabilitation.

Key study: A study in the British Journal of Surgery found that a 4-6 week prehabilitation programme for colorectal surgery significantly improved exercise tolerance and reduced pulmonary complications.

4. Prehabilitation for Cancer Patients

Cancer surgery presents specific risks and complications, making physical preparation particularly beneficial:

In cancer patients, preoperative training improves immune response, reduces inflammation, and enhances physical resilience.

Prehabilitation also supports a better psychological response, as patients face surgery with a greater sense of control.

Key study: Research published in Annals of Surgery indicates that cancer patients who prepare physically before surgery experience significantly fewer complications and improved quality of life at 3 and 6 months post-surgery.

Prehabilitation programmes, including controlled physical activity, are linked to better surgical outcomes, with fewer complications, reduced hospital stays, and faster recovery. The Digital Twin within the Klinik Sankt Moritz Network may

enable new research with innovative results over the next 48 months.

Digital follow-up offers your patients extraordinary support and allows you to engage in digital medicine immediately.

Before leaving you with the bibliography, I hope the importance of certifying your degree in a connected world is clear, to protect your reputation and the health of your potential patients in this increasingly interconnected environment.

<https://kliniksanktmoritz.ch/physician/>

Bibliography

Effects of tele-prehabilitation on clinical and muscular recovery in patients awaiting knee replacement: protocol of a randomised controlled trial

The increasing prevalence of knee osteoarthritis and total knee arthroplasty (TKA) impose a significant socioeconomic burden in developed and developing countries.

Prehabilitation (rehabilitation in the weeks immediately before surgery) may be crucial to prepare patients for surgery improving outcomes and reducing assistance costs.

Moreover, considering the progress of telemedicine, candidates for TKA could potentially benefit from a tele-prehabilitation programme. We aim to evaluate the effects of a home-based tele-prehabilitation program for patients waiting for total knee replacement.

<https://bmjopen.bmj.com/content/13/10/e073163>

Effectiveness of prehabilitation for patients undergoing orthopaedic surgery: protocol for a systematic review and meta-analysis.

Undergoing major surgery can induce physical and functional decline. Prehabilitation programmes aim to improve physical fitness and function preoperatively and could enhance

postoperative recovery and outcomes. Prehabilitation interventions have been utilised across a range of orthopaedic populations of all ages and can be multimodal in nature. The aim of this study is to evaluate the effectiveness of prehabilitation for patients undergoing orthopaedic surgery including day surgery procedures. It will also investigate the components of prehabilitation to understand optimum duration and frequency of programmes.

<https://bmjopen.bmj.com/content/9/11/e031119>

Postoperative course of coronary artery bypass grafting in patients with physical exercise prehabilitation

The positive effects of high-intensity physical exercise prehabilitation for CABG on the optimization of postoperative course has been confirmed.

https://academic.oup.com/eurheartj/article/41/Supplement_2/ehaa946.3090/6002386

The impact of prehabilitation on post-surgical complications in patients undergoing non-urgent cardiovascular surgical intervention: Systematic review and meta-analysis

Prehabilitation reduces the number of post-surgical complications and increases maximal inspiratory pressure; a reduction in the length of stay and an improvement of functional capacities are also probable.

<https://academic.oup.com/eurjpc/article/25/4/404/5926138>

Framework for prehabilitation services

The development of local prehabilitation services involves mapping surgical pathways, gaining clinical support, assessing local capacity, and involving patients in service design. Data collection and quality assurance are essential for service improvement and planning.

Prehabilitation provides a valuable opportunity to educate patients, offering both perioperative and long-term health benefits.

<https://academic.oup.com/bjs/article/107/2/e11/6121036>



ABOUT THE AUTHOR

Sergio d'Arpa - With over six years leading Klinik Sankt Moritz, my focus has been driving innovation in augmented longevity through predictive medicine and Digital Twin technology. Our mission is to revolutionize healthcare by anticipating adverse events and delivering a transformative, personalized care experience.